Test Plan Prototype 1

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Subject: Test Plan for Prototype 1

1.0 Scale Weight Sensitivity

1.1 Equipment:

- Computer
- "Smart" Scale
  - Arduino Uno
  - HC-05 Bluetooth module
  - 5kg load cell
  - HX711 amplifier
- Weight set ranging from 1g to 500g
- USB cable Type A/B

1.2 Setup:

- Place scale on flat surface
- Plug the Arduino in to the computer with the USB cable
- Begin test

1.3 Test Description:

- Place known weight on scale and record measured weight displayed on LCD screen
- Gradually increase the weight on the scale noting the measurement displayed on the LCD screen
- Gradually remove weights (heaviest to lightest) until scale reads 0, noting at which weight this zeroing happens

1.4 Measurable Criteria:

- Percent difference between known weight and scale measurement
- The smallest weight the scale registers

2.0 Scale Taring

2.1 Equipment:

- Computer
- "Smart" Scale
    - Arduino Uno
    - HC-05 Bluetooth module
    - 5kg load cell
    - HX711 amplifier
- Weight set ranging from 1g to 500g
- USB cable Type A/B

2.2 Setup:

- Place scale on flat surface and plug the Arduino in to the computer with the USB cable
- Open the Arduino Serial Monitor from the Arduino app on the computer
- Begin test

2.3 Test Description:

- Place known weight on the scale and note scale measurement displayed on LCD screen
- Leave known weight on the scale. In the serial monitor, type 't' and press enter to tare the scale
- Scale should reset to 0. Confirm this from the measurement displayed on the LCD screen
- Place another know weight on the scale noting what the correct measurement should be (total current weight - tared weight) and note what the scale measures on the LCD screen.

2.4 Measurable Criteria:

- Is user able to get scale back to 0 after taring **(Yes/No)**
- Percent difference between expected measurements after taring and actual scale reading

3.0 Bluetooth Signaling

3.1 Equipment:

- Android phone with test app
- Android Application (Android API 23, Google Firebase)
- “Smart Scale”
    - Arduino Uno
    - HC-05 Bluetooth module
    - 5kg load cell
    - HX711 amplifier
- Weight set ranging from 1g to 500g
- USB cable Type A/B

3.2 Setup:

- Place scale on flat surface and plug the Arduino in to the computer with the USB cable
- Open the Arduino Serial Monitor from the Arduino app on the computer
- Open the test app on the android phone
- Begin test

3.3 Test Description:

- Pair the android phone with the arduino hc-05 bluetooth module
- Run android application
- Connect to bluetooth
- Place known weight on the scale, in the serial monitor, type ‘q’ and press enter, and confirm that the weight value is sent and displayed in the android application

3.4 Measurable Criteria:

- Is user able to connect to Arduino via Bluetooth **(Yes/No)**
- Is user able to see Arduino Scale Data **(Yes/No)**

4.0 Authentication

4.1 Equipment:

- Device - Android Phone
- Android Application (Android API 23, Google Firebase)

4.2 Setup:

- Load Android Studio and run application emulator.
- Navigate to login page.

4.3 Test Description:

- User the google login button from firebase
- Login with existing user

4.4 Measurable Criteria:

- Is user able to access application after user authentication **(Yes/No)**
- Does program crash at any time **(Yes/No)**

5.0 Dialogflow Speech Recognition

5.1 Equipment:

- Computer with internet connectivity
- iotk-nlu-test Dialogflow Console
- Google Assistant Emulator

5.2 Setup:

- Load Dialogflow console (https://dialogflow.cloud.google.com) and launch Google Assistant emulator

5.3 Test Description:

- Initialize ‘recipeStart’ intent with test phrases:
  - “Start the recipe”
  - “What is the recipe title”
- Initialize ‘recipeDetails’ intent with test phrases:
  - “Give me the recipe details”
  - “How many servings does this make”
- Initialize 'ingredientStart’ intent with test phrase:
  - “What are the ingredients”
- Initialize 'instructionStart’ intent with test phrase:
  - “What are the instructions” ”
- Initialize ‘ingredientJump’ intent with test phrases:
  - “What is the second ingredient”
  - “Can you give me the fourth ingredient”
  - “Give me the next ingredient”
  - “Can you repeat that ingredient”
  - “Go back an ingredient”
- Initialize ‘instructionJump’ intent with test phrases:
  - “What is the first instruction”
  - “Can you give me the tenth instruction”
  - “Give me the next instruction”
  - “Can you repeat that instruction”
  - “Go back an instruction”

5.4 Measurable Criteria:

- Module has response for all phrases **(Yes/No)**
- Response matches user intent **(Yes/No)**
- Module does not crash **(Yes/No)**